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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/790,180      | 03/02/2004  | Takeshi Arai         | 501.43537X00        | 3237             |

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EXAMINER

ZERVIGON, RUDY

|          |              |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
|----------|--------------|

1763

DATE MAILED: 11/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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|                              |                                      |                                    |  |
|------------------------------|--------------------------------------|------------------------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/790,180 | <b>Applicant(s)</b><br>ARAI ET AL. |  |
|                              | <b>Examiner</b><br>Rudy Zervigon     | <b>Art Unit</b><br>1763            |  |

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 19 September 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) 1-4 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 5-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>3/2/2004</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election with traverse of Group II, claims 5-10 in the reply filed on September 19, 2005 is acknowledged. The traversal is on the grounds that:

“

applicant's note that the process claims of invention I as represented by claims 1 - 4 are in terms of a “method for processing a sample” (emphasis added), without defining any type of “processing”. Similarly, the apparatus claims of Invention II of claims 5 - 10 are in terms of an “apparatus for processing a sample” (emphasis added) or a “plasma processing apparatus control system” (emphasis added), without defining any type of “processing”...

“

This is not found persuasive because the pending claims in each of the plural inventions encompass both etching and deposition processes. As a result, the apparatus (Figure 3; column 8, lines 10-67) as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case, the apparatus as claimed can be used to practice another and materially different process, for example, and etching process.

The requirement is still deemed proper and is therefore made FINAL.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

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3. Claims 5-10 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claims contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Applicant's "evacuation means ("booster pump"; column 6, lines 6-11)" is not elaborated sufficiently to meet first and sixth paragraph requirements. For this reason, the Examiner cannot ascertain proper equivalents in the prior art and thus cannot perform an analysis under 112, 6<sup>th</sup> paragraph of the prior art.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 5-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Tsukazaki; Hisashi et al. (US 5837094 A). Tsukazaki teaches an apparatus (Figure 3; column 8, lines 10-67) for processing a sample (1, Figure 3; column 8, lines 10-67), comprising: a processing chamber h(4,12, Figure 3; column 8, lines 10-67) provided with a platform (2, Figure 3) on which the sample (1, Figure 3; column 8, lines 10-67) is placed, the processing chamber (4,12, Figure 3; column 8, lines 10-67) being provided with a measurement window (15c,d, Figure 3; column 1, lines 44-59) formed on a wall surface (12, Figure 3; column 8, lines 10-67); evacuation means ("booster pump"; column 6, lines 6-11) for evacuating the processing chamber (4,12, Figure 3; column 8, lines 10-67) gas injector (7, Figure 3; column 8, lines 10-67) for injecting a gas into the processing chamber (4,12, Figure 3; column 8, lines 10-67); a plasma generator (not shown;

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column 2, lines 27-36) for generating plasma in the processing chamber (4,12, Figure 3; column 8, lines 10-67) after the processing chamber (4,12, Figure 3; column 8, lines 10-67) has been evacuated by the use of the evacuation means ("booster pump"; column 6, lines 6-11) and the gas has been injected into the processing chamber (4,12, Figure 3; column 8, lines 10-67) by the use of the gas injector (7, Figure 3; column 8, lines 10-67); and a particle detector (15, Figure 3; column 1, lines 44-59) for detecting scattered light generated from contaminants present in the processing chamber (4,12, Figure 3; column 8, lines 10-67) by irradiating and scanning, with laser (15a, Figure 3; column 1, lines 44-59) light, a space which is defined in the processing chamber (4,12, Figure 3; column 8, lines 10-67) but is outside a region where the plasma is generated via the measurement window (15c,d, Figure 3; column 1, lines 44-59) during processing the sample (1, Figure 3; column 8, lines 10-67) placed on the platform (2, Figure 3) with the plasma generated in the processing chamber (4,12, Figure 3; column 8, lines 10-67) by the use of the plasma generator (not shown; column 2, lines 27-36), as claimed by claim 5

Tsukazaki further teaches:

- i. The apparatus (Figure 3; column 8, lines 10-67) according to claim 5, wherein the measurement window (15c,d, Figure 3; column 1, lines 44-59) is provided in a space defined between the processing chamber (4,12, Figure 3; column 8, lines 10-67) and an exhaust passage (12, Figure 3; column 1, lines 44-59), as claimed by claim 6
- ii. The apparatus (Figure 3; column 8, lines 10-67) according to claim 6, wherein the laser (15a, Figure 3; column 1, lines 44-59) scanning is performed by the particle detector (15, Figure 3; column 1, lines 44-59) in such a manner that a scanned surface is orthogonal to a direction of exhaust along which the gas or the contaminants flow from the processing chamber (4,12,

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Figure 3; column 8, lines 10-67) to the exhaust passage (12, Figure 3; column 1, lines 44-59), as claimed by claim 7

iii. A plasma processing apparatus (Figure 3; column 8, lines 10-67) control system (31, Figure 3) comprising: a plasma processing apparatus (Figure 3; column 8, lines 10-67) including a platform (2, Figure 3) on which a sample (1, Figure 3; column 8, lines 10-67) is placed, a plasma generator (not shown; column 2, lines 27-36), and a measurement window (15c,d, Figure 3; column 1, lines 44-59) formed on a wall surface (12, Figure 3; column 8, lines 10-67), the apparatus (Figure 3; column 8, lines 10-67) processing the sample (1, Figure 3; column 8, lines 10-67) placed on the platform (2, Figure 3) with the plasma generated by the plasma generator (not shown; column 2, lines 27-36); a particle detector (15, Figure 3; column 1, lines 44-59) for detecting scattered light generated from contaminants present in the plasma processing apparatus (Figure 3; column 8, lines 10-67) by irradiating and scanning, with laser (15a, Figure 3; column 1, lines 44-59) light, a space which is defined in the processing apparatus (Figure 3; column 8, lines 10-67) but is outside a region where the plasma is generated via the measurement window (15c,d, Figure 3; column 1, lines 44-59) of the processing apparatus (Figure 3; column 8, lines 10-67) during the plasma processing on the sample (1, Figure 3; column 8, lines 10-67) by the processing apparatus (Figure 3; column 8, lines 10-67); and a controller (31, Figure 3) for receiving a signal output from the processing apparatus (Figure 3; column 8, lines 10-67) and a detection signal from the particle detector (15, Figure 3; column 1, lines 44-59) to control the processing apparatus (Figure 3; column 8, lines 10-67) and contaminant data, as claimed by claim 8

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- iv. The plasma processing apparatus (Figure 3; column 8, lines 10-67) control system (31, Figure 3) according to claim 8, wherein the controller (31, Figure 3) compares the output signal ("end point"; column 5, lines 56-64; column 7, lines 31-40) from the processing apparatus (Figure 3; column 8, lines 10-67) with a timing of the contaminant detection by the particle detector (15, Figure 3; column 1, lines 44-59) to identify a contaminant source in the processing apparatus (Figure 3; column 8, lines 10-67), as claimed by claim 9
- v. The plasma processing apparatus (Figure 3; column 8, lines 10-67) control system (31, Figure 3) according to claim 8, wherein the controller (31, Figure 3) controls contaminants depending on signal intensity of the scattered light and the number of scattered light generations from the contaminants detected by the particle detector (15, Figure 3; column 1, lines 44-59), and instructs a maintenance timing and a maintenance method ("end point"; column 5, lines 56-64; column 7, lines 31-40) depending on the signal intensity of the scattered light and the number of scattered light generations, as claimed by claim 10

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*Conclusion*

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Rudy Zervigon whose telephone number is (571) 272.1442. The examiner can normally be reached on a Monday through Thursday schedule from 8am through 7pm. The official fax phone number for the 1763 art unit is (703) 872-9306. Any Inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Chemical and Materials Engineering art unit receptionist at (571) 272-1700. If the examiner can not be reached please contact the examiner's supervisor, Parviz Hassanzadeh, at (571) 272-1435.

A handwritten signature in black ink, appearing to read 'Rudy Zervigon', with a date '11/27/15' written below it.